



Hydropower

Environmental Issues

Hydropower projects convert the energy of flowing water into electricity. A dam holds back water, creating a reservoir of potential power. On the upper side of the dam, a gate is opened to let water surge through a tunnel leading to turbines. The water turns the turbines which in turn spins generators to create electricity. Transmission lines carry the electricity to wherever it is needed. From an electricity production standpoint, one of the leading benefits of hydropower is its unique ability to load follow, or to almost instantaneously produce electricity as consumers require it. When demand is up, more water is released from above the dam, through the turbines and into the river downstream. As demand wanes, water flow is reduced. The resulting modifications in streamflow can have both immediate and long-term impacts on aquatic life and on basic components of water quality (e.g., temperature, dissolved oxygen, dissolved nitrogen).

Dams also have an affect on fish passage. They can fragment a river system, impede or block fish movement, and kill or injure fish. The viability and mobility of fish species that would otherwise move to and from different habitats within a river system may diminish substantially, if not completely, due to a hydropower project. In addition to their direct benefits to society, these fish may also be important components of food webs that support populations of other commercially and recreationally important species.



Water impoundment's and flow changes affect not just the river itself, but the associated streamside (riparian) and wetland habitats. Load following exacerbates riverbank erosion and harms fish, invertebrates, amphibians, another aquatic life and reservoirs may flood land used by avian and terrestrial species. Corridors needed for transmission lines may also fragment habitats and create flight hazards to migratory birds, and maintaining corridors with herbicides may cause adverse effects to plants and wildlife.

